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ABSTRACT

The City of Austin (Texas) provides funds for an educational initiative to involve minority high school students in water quality issues and to reduce the dropout rate through positive role model interaction with academically successful students. Principal program activities were testing river water for pollutants and tutoring at-risk students by student mentors. Both trainees and mentors are paid for their time spent testing water and in conducting tutoring sessions. The program recruited and trained 32 high school students (19 males and 13 females) and included 10 mentors (5 males and 5 females). There were 16 Hispanic, 10 African American, 2 White, and 3 other students. Full information is available for 27 of these students. Compared to all district high school students, fewer of the participants dropped out of school than predicted, and none were recommended to be retained at their 1992-93 grade level. The program appears to have a positive effect on academic achievement, and students generally thought it had helped them learn more about science and mathematics. In addition, three potentially harmful or costly leaks in the city's water system were detected. Program continuation is recommended, with some suggestions for expansion and improvement. Fourteen figures illustrate study findings. (Contains two references.) (SLD)

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Austin Youth River Watch Program
1992-93 Final Report

ED 365 698

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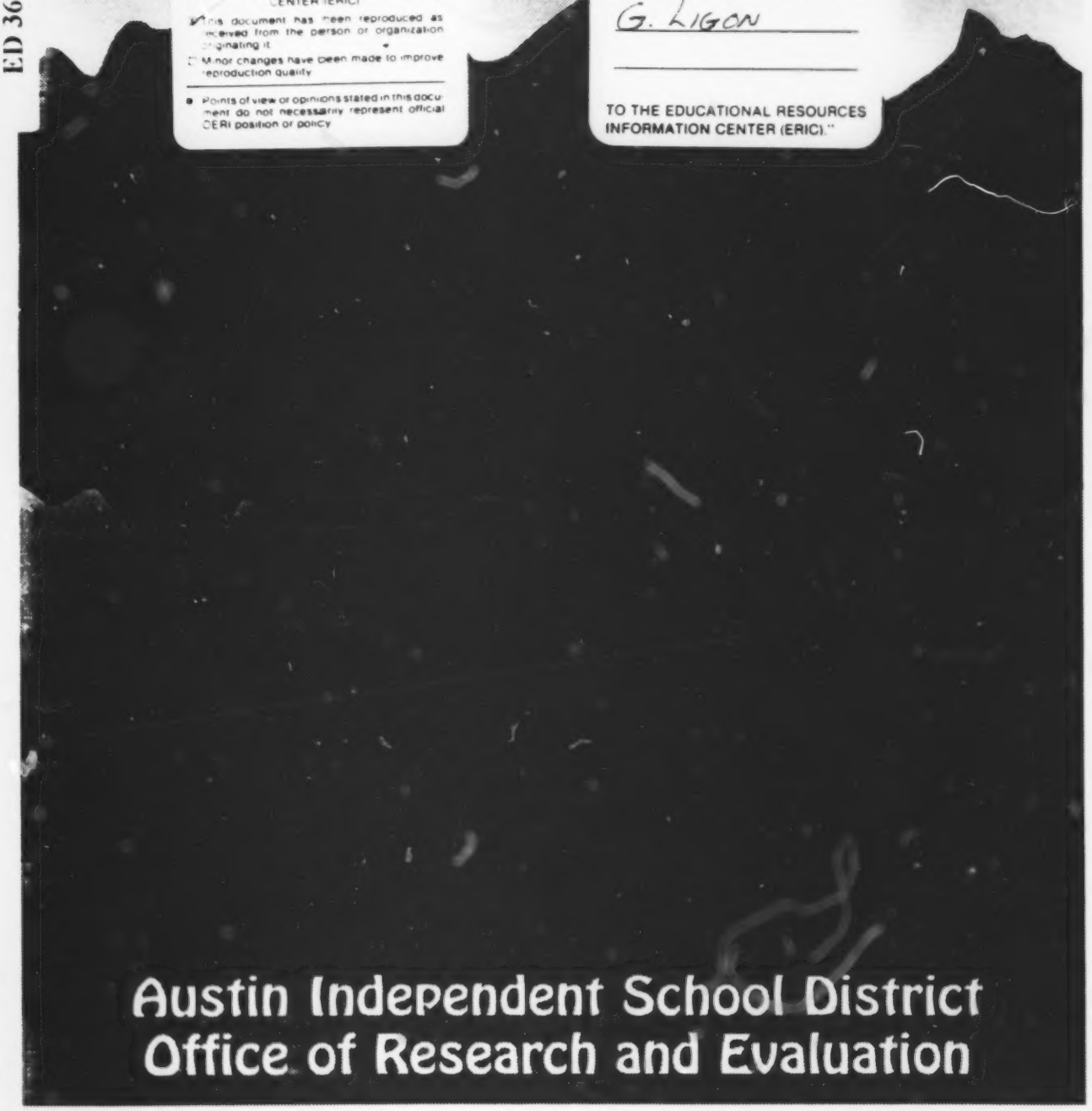

Austin Independent School District
Office of Research and Evaluation

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Austin Youth River Watch Program

Executive Summary

Austin Independent School District
Office of Research and Evaluation

Author: Jeannine Turner

Program Description

The City of Austin provided funds for an educational initiative to involve minority high school students in water quality issues and to reduce the dropout rate through positive role model interaction with academically successful students. Principal program activities were testing river water for pollutants and the tutoring of at-risk students by their student mentors. Both trainees and mentors are paid for their time spent testing river water and in tutoring sessions. From April 1992 through June 1993, the Austin Youth River Watch Program received $82,500 from the City of Austin. The Lower Colorado River Authority also assisted by providing training and expertise.
The City of Austin funds provided:

- Water testing equipment and supplies,
- Office rental, supplies, and equipment,
- Stipends for student involvement,
- A part-time program coordinator, and
- Program evaluation.

Major Findings

1. The Austin Youth River Watch Program recruited and trained 31 minority, at-risk high school students in river water monitoring (p. 6).

2. Compared to all AISD high school students, fewer Austin Youth River Watch program students dropped out of school than predicted, and none of the program students were recommended to be retained at their 1992-93 grade level (p. 10).

3. Based on science and mathematics course improvement, the program appears to have had a positive effect on students' academic achievement, especially those that have been involved more than six months (p. 11).

4. All Austin Youth River Watch program students agreed that they would encourage others to participate in the Austin Youth River Watch Program, and they planned to continue their participation. Many or most of the students agreed that participation had helped them learn more in science and mathematics (64%), and be more interested (46%), and doing better (55%), in school work (p. 15).

5. Because of their river water monitoring, program participants discovered and reported three potentially harmful or costly leaks in the City's water system (p. 21).

Budget Implications

Mandate: External funding agency

Funding Amount: $82,500

Funding Source: City of Austin

Implications: The Austin Youth River Watch Program provided funding to involve minority high school students in water quality issues and to reduce the dropout rate through positive role model interaction with academically successful students. The program addresses the District's first strategic objective of having every student function at his/her optimal level of achievement and of having every student progress successfully through the system. The program also addresses the District's third strategic objective of having one hundred percent of all students who enter AISD graduate. Funded activities address the District's value of developing and coordinating a network of student support services and of acquiring public and private funds for developing effective partnerships in the community.

Recommendations

Based on current evaluation findings, the following recommendations are presented:

1. The Austin Youth River Watch Program should continue its river water monitoring service for the City of Austin.

2. The Austin Youth River Watch Program should continue to recruit and train minority at-risk students for river water monitoring and interaction with academically successful and experienced river water monitoring student role models. The program should be expanded to include more public and private high school students.

3. The Austin Youth River Watch Program should continue to tutor at-risk student trainees.

4. The Austin Youth River Watch Program should seek additional resources to alleviate logistical problems such as transportation.

PROGRAM EFFECTIVENESS SUMMARY

AUSTIN YOUTH RIVER WATCH PROGRAM
1992-93

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS Predicted	Obtained	PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT) #	%	COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
Austin Youth River Watch Funding Source: External Grades: 9-12	+	$82,500	31	$2,661	3	2	1	33%	$82,500

Rating is expressed as contributing to any of the five AISD strategic objectives.

+	Positive, needs to be maintained or expanded
0	Not significant, needs to be improved and modified
-	Negative, needs major modification or replacement
Blank	Unknown

Cost is the expense over the regular District per-student expenditure.

0	*No cost* or minimal cost
$	*Indirect costs* and overhead, but no separate budget
$$	*Some direct costs*, but under $500 per student
$$$	*Major direct costs* for teachers, staff, and/or equipment in the range of $500 per student or more

* Total number of students served represents students attending both public and private schools (31); however, the predicted and obtained dropout rate is based on the number of students attending AISD public schools (27) for whom full student information is available.

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CONCLUSION

Overall, the City of Austin funds were used effectively to improve minority student interest and involvement in both water quality issues and their education. The Austin Youth River Watch Program recruited and trained minority at-risk students in river water monitoring and tutored them in mathematics and science. Student involvement in the Austin Youth River Watch program had a positive effect on their remaining in school and achieving greater success academically.

Students also performed a valuable service to the community. Because of their river water monitoring, program participants discovered and reported potentially harmful or costly leaks in the City's water system. The discovery of a sewage leak resulted in an award, given by the Lower Colorado River Authority, for "environmental excellence" to the students and staff who detected the leak.

EVALUATION OVERVIEW

Data for the evaluation of the Austin Youth River Watch program were obtained from the following sources:

- Interviews with the program coordinator and the program director provided information on program funding, program implementation, and program activities.
- Student rosters provided by the program coordinator were used to access student information.
- Questionnaires, designed by AISD's Office of Research and Evaluation (ORE), provided student perceptions of program benefits and of the effect of their participation.
- AISD student data files supplied information concerning student characteristics, grades, and grade point averages.
- ORE's GENESYS (GENeric Evaluation SYStem) provided analysis and comparisons of Austin Youth River Watch Program students with AISD public school students.

INTRODUCTION

The Colorado River Watch Foundation (CRWF) is a nonprofit 501 (c) (3) organization dedicated to the scientific study, preservation, and conservation of the Colorado River. In the fall of 1991, the CRWF approached the City of Austin with a proposal for involving at-risk minority students in river monitoring activities with the overall intent of reducing the dropout potential of these students through positive role model interaction and of encouraging them toward science/ environmental career goals.

The City of Austin agreed, and funding for this initial year (1992-93) has been drawn from the water and wastewater utility rates, electric utility rates, drainage fees administered by the environment and conservation services department, and special funds designated by the Austin City Council for Youth at Risk programs. Initial organization of the program began in the spring of 1992. A program coordinator was hired, office space was rented, office equipment was purchased, and water quality monitoring equipment was purchased. The Austin Independent School District's Office of Research and Evaluation contracted with CRWF for $3,000 to develop and perform an evaluation of the Austin Youth River Watch program.

The Austin Youth River Watch Program, which grew out of a combined concern for water quality protection, a desire to reduce the school dropout rate, and, ultimately, to increase minority representation in science careers, has three major goals:

1. To improve the water quality of the Colorado River and its tributaries through ecological understanding and systems analysis,

2. To reduce the dropout rate of students in the public and private high schools of Austin through positive role model interaction, and

3. To increase the participation of minority students in critical environmental issues and in technical careers that require understanding of science and mathematics.

PROGRAM DESCRIPTION

Original Program Design

To meet the program goals, the original Austin Youth River Watch Program conception, as presented to the City of Austin, contained the following design:

- Eleventh- and twelfth-grade student "mentors" who are academically successful and experienced in river water monitoring would be hired to work with ninth- and tenth-grade at-risk student "trainees" to form a water quality monitoring "team."
- The mentors would be required to conduct chemical and biological monitoring with the trainees at a designated monitoring station located on one of the 22 creeks within the City of Austin that feed into the Colorado River.
- Mentors would be paid to tutor the trainees in mathematics and/or science for at least two hours per week.
- At-risk students would be paid for their river water monitoring and tutorial involvement.
- Cooperating teachers at each participating high school, who have been trained in river water monitoring, would supervise the mentor/trainee teams and would give weekly monitoring data reports and weekly time sheets to the program coordinator.
- The results of each water quality testing would be added to the Lower Colorado River Authority (LCRA) data base of water quality testing done throughout the LCRA district.

Program Implementation

As the Austin Youth River Watch Program began to take shape, it became apparent that one major circumstance created difficulties for the implementation of the program as originally designed. Many cooperating teachers were unable to fulfill their commitments to the program and ceased their involvement. During the fall 1992 semester, recruitment, training and supervision of the student participants faltered because of the lack of cooperating teacher involvement.

To circumvent this problem, a few changes were initiated in the Austin Youth River Watch program design in the beginning of the spring 1993 semester:

- The program coordinator became more involved in the recruiting, training, and supervision of student participants;

- Training of river water monitoring to interested teachers and students was conducted, by the program coordinator, at the Austin Youth River Watch office on a weekly basis;

- The Austin Youth River Watch office was opened to allow mentors and trainees to conduct tutoring sessions;

- The program coordinator began assisting with tutoring student trainees;

- The program coordinator began transporting students from their schools to their designated water monitoring sites; and

- To facilitate transportation and the mentor/trainee relationship, school teams were created which allowed mentors and trainees to be more accessible to each other and also enabled some mentors to take on more than two trainees.

With these changes in place, program implementation became feasible, although the changes placed great time demands on the program coordinator, particularly in the areas of transportation and tutoring.

Because the program did not have the projected number of student participants (20 mentors, 40 trainees), an extension of the program was requested in May 1993 for a completion date of July 31, 1993 instead of the original April 30, 1993 date. An extension was granted by the City of Austin, and an interim report was completed in April 1993 to assess current program implementation. (The interim report is available from ORE on request.)

As a result of program changes, student participation in the Austin Youth River Watch Program has grown steadily since the program's initial implementation in the summer of 1992. Figure 1 shows the growth of Austin Youth River Watch student participation by quarter.

FIGURE 1
WHEN STUDENTS JOINED THE 1992-93
AUSTIN YOUTH RIVER WATCH PROGRAM

QUARTER	# OF TRAINEES	# OF MENTORS
Q1	8	6
Q2	4	0
Q3	7	4
Q4	12	0
TOTAL	31	10

Q1: July, August, September 1992
Q2: October, November, December 1992
Q3: January, February, March 1993
Q4: April, May, June 1993

ADDITIONAL PROGRAM ACTIVITIES

Special activities were scheduled approximately once a month to provide students with the opportunity to get to know each other. The events promoted the students' feelings of group cohesiveness and always included water quality monitoring as the central theme. These activities included:

- A tour of Walnut Creek Wastewater Treatment Plant,
- Interviews with professional environmental staff of the City of Austin,
- Picnics at Waterloo and Zilker Parks,
- A Colorado River Watch Network workshop at Lake Buchanan,
- Overnight camping trips at Flat Rock Creek and McKinney Falls State Park, and
- Attending the grand reopening of McKinney Falls.

Diurnal Study

Austin Youth River Watch students also participated in the annual Colorado River Watch Network Diurnal Study of the Colorado River on October 30-31, 1992. The Diurnal Study conducts water quality tests of the Colorado River at a specific location on the river every hour over a 24-hour period. Seven (7) Austin Youth River Watch students signed up for different time slots and camped at a station on the south shore of Town Lake on the grounds of the Austin Youth Hostel. Surveys were given to the students at the end of the Diurnal Study to assess their perceptions of the academic skills involved in river water testing and their opinions about the importance and usefulness of their involvement in the Austin Youth River Watch Program. All surveys (100%) were returned.

Students indicated that participating in the Diurnal Study helped them to know more about environmental issues (43%), science (57%), and water issues (86%). The Diurnal Study also helped to increase students' interest in environmental issues (57%), science (43%), mathematics (29%), and water issues (71%). Students related that in testing the river water they used mathematics (57%), science (57%), knowledge of environmental issues (43%) and English (29%). All but one student (who indicated "neutral") believed their participation in the Diurnal Study was "very" (43%) or "somewhat" (43%) important. All of the students indicated they would encourage others to participate in the Austin Youth River Watch Program, and all of the students indicated they planned to continue their participation in the program.

Annual Spring Symposium

The Annual Spring Student Symposium was held April 23-25, 1993 at the Salt Lick Restaurant on Onion Creek. This annual symposium is conducted by community leaders and professional scientists. Sixteen (16) Austin Youth River Watch students attended the symposium, which offered presentations by LCRA, watershed instruction walks, environmental discussions, and recreational swimming. Austin Youth River Watch students participated in a poster presentation which displayed their river monitoring data.

STUDENT CHARACTERISTICS

The Austin Youth River Watch Program participants attend a number of Austin public high schools. One private high school and one alternative learning center are also represented in the program. The schools that mentors and trainees attend are listed in Figure 2.

FIGURE 2
SCHOOL LOCATION OF 1992-93
AUSTIN YOUTH RIVER WATCH STUDENTS

SCHOOL	# OF TRAINEES	# OF MENTORS	% OF STUDENTS
Austin HS	4	1	12%
Crockett HS	3	1	10%
Johnston HS	1	0	2%
LBJ HS	3	6	21%
Lanier HS	9	1	24%
Travis HS	7	0	19%
Duane Lake Academy	2	1	7%
Creative Rapid Learning Center	2	0	5%
TOTAL	31	10	100%

Austin Youth River Watch Trainees

Students considered academically at risk of dropping out of school have a greater probability of leaving school before completing the twelfth grade than students not classified as being at risk. At-risk students attending Austin public schools were identified by ORE in April 1992, and a list was given to the program coordinator for the recruitment of river water monitoring trainees in the Austin Youth River Watch Program. The definitions used by AISD for at-risk identification of secondary (middle and high school) students are as follows:

- Two or more years older than expected for the grade level,
- Two or more years below grade level in reading or mathematics as measured by a norm-referenced achievement test,
- Two or more F's in a semester,
- Failed at least one of the Mathematics, Reading, or Writing tests on the most recent administration of the Texas Assessment of Academic Skills (TAAS).

For more information concerning at-risk students, see ORE Publication No. 91.41.

Among the 27 trainees attending Austin public high schools 85% (23 students) are identified as being at risk. Four (15%) Austin public high school students were admitted into the program who were not classified as being at risk. These students had a desire to become involved in water quality monitoring. Although not identified as being at risk, two of the four students had low grade point averages (less than 1.5 on a 4-point scale).

Fourteen students (52%) were identified as being overage for their grade level. Ninth-grade students who are over the age of 14, and tenth-grade students over the age of 15, are considered overage for their grade levels. Figure 3 displays the age and grade level of Austin public high school student trainees. The shaded areas in the table call attention to those students considered overage for their grade level.

FIGURE 3
AGE AND GRADE LEVEL OF 1992-93
AUSTIN YOUTH RIVER WATCH STUDENTS
ATTENDING AUSTIN PUBLIC HIGH SCHOOLS

GRADE LEVEL	AGE 13	AGE 14	AGE 15	AGE 16	AGE 17	AGE 18	TOTAL
9TH GRADE	2	7	8	3	0	1	21
10TH GRADE	0	1	3	2	0	0	6
TOTAL	2	8	11	5	0	1	27

In general, female participation in advanced mathematics and science courses and careers is below that of males. However, more males than females tend to be classified as being at risk of dropping out of school (see ORE Publication No. 91.41). As Figure 4 illustrates, *the ratio of male participants in the Austin Youth River Watch program is slightly higher than that of females.*

FIGURE 4
SEX OF 1992-93
AUSTIN YOUTH RIVER WATCH STUDENTS

SEX	# OF TRAINEES	# OF MENTORS	% OF STUDENTS
Male	19	5	58%
Female	13	5	42%
TOTAL	31	10	100%

One goal of the Austin Youth River Watch Program is to increase the participation of minority students in environmental issues and to encourage them to pursue technical careers in science and mathematics. Additionally, a greater proportion of Hispanic and African American students are more likely to be classified as being at risk of dropping out of school than White/Other (see ORE Publication No. 91.41). As Figure 5 displays, *94% of the trainees are minority students*. Present trainees will become future mentors in the program, thereby promoting minority leadership and mentorship. The ethnic composition of the trainees of the Austin Youth River Watch Program is shown in Figure 5.

FIGURE 5
ETHNICITY OF 1992-93
AUSTIN YOUTH RIVER WATCH STUDENTS

ETHNICITY	# OF TRAINEES	% OF TRAINEES
Hispanic	16	52%
African-American	10	32%
White	2	6%
Other	3	10%
TOTAL	31	100%

Austin Youth River Watch Mentors

Mentors were recruited from participating student members of the Colorado River Watch Network (CRWN), a voluntary, citizen program that monitors the water quality of the Colorado River. These students have completed river water monitoring training and are also successful students of science and mathematics. The selection criteria used for student mentor identification included:

- Being a high school senior or junior,
- Experience in the Colorado River Watch Network,
- Enrollment in a science or mathematics course each semester, and
- Expressing a strong desire to work with younger students.

These experienced, successful students act as project mentors and academic tutors to the less experienced, and academically unsuccessful, Austin Youth River Watch trainee members.

The grade levels of both the trainee and mentor participants are given in Figure 6.

FIGURE 6
GRADE LEVEL OF 1992-93
AUSTIN YOUTH RIVER WATCH STUDENTS

GRADE LEVEL	# OF TRAINEES (N = 27)	# OF MENTORS (N = 9)
9	21	1
10	6	1
11	0	1
12	0	6
TOTAL	27	9

RETAINEE/DROPOUT STATUS

Two participants of the Austin Youth River Watch dropped out of school. However, fewer program students dropped out of school than predicted, and program students had a lower dropout rate than AISD high school students overall. Additionally, none of the remaining program students were recommended to be retained at their 1992-93 grade level. This is far better than the AISD average.

One of the major goals of the Austin Youth River Watch program is to reduce the dropout rate of students in Austin high schools. To assess this program goal, ORE's GENeric Evaluation SYStem (GENESYS) was used to compare Austin Youth River Watch program dropout and retainee statuses with that of the overall District dropout and retainee rates. GENESYS is a method of streamlining data collection and evaluation through use of computer technology and is used to evaluate the effectiveness of dropout prevention programs. GENESYS gathers and reports descriptive information on specified groups of students such as student characteristics, achievement, attendance, discipline, grades/credits, dropout status, retention status, and at-risk status. For more information regarding GENESYS, see *GENESYS 1990-91: Selected Program Evaluations* (ORE Publication No. 90.39).

Retainee Status

Many AISD students become overage for their grade as a result of being held back from advancing to the next grade level (see ORE Publication No. 91.41). Being retained is, in turn, a major contributing factor to the potential for dropping out of school. In 1992-93, 8% of AISD high school students were recommended to be retained at the end of the 1992-93 school year. However, *none of the students participating in the Austin Youth River Watch program were recommended to be retained at their 1992-93 grade level.* Therefore, the retention rate for Austin Youth River Watch program students was far lower than the retention rate experienced by the District.

Dropout Status

Of the 27 Austin Youth River Watch participants who were AISD students, three (11.1%) were predicted to drop out of school during the 1992-93 school year. (Although 85% of the students were classified at risk, the State definition of at risk used is quite broad, and some students who are identified by the State criteria actually have a low probability of dropping out. Only the students who were at risk for reasons which, historically, have been associated with a high probability of dropping out were included in the prediction. See ORE Publication No. 91.41.) Two (7.4%) Austin Youth River Watch program students did drop out of school during the spring semester. Both students are Hispanic and overage for their grade level. One program dropout is a female student who joined the program during the first quarter; the other program dropout is a male student who joined the program during the second quarter. Although two students did drop out of school during the spring semester, *fewer students dropped out than predicted, indicating that the program had a positive effect on the dropout rate.*

The Austin Youth River Watch dropout rate for the final six-weeks reporting period of the 1992-93 school year was 7.4%--lower than the overall AISD high school dropout rate (8.9%) for the same time period. This means that *the Austin Youth River Watch program students did better (i.e., more stayed in school) than District high school students overall.*

STUDENT ACHIEVEMENT

The program appears to have had a positive effect on students' academic achievement, especially those who have been involved more than six months. Science and mathematics grades improved for many students. Grade point averages increased for most Austin Youth River Watch students.

Most of the trainees (85%) have been identified by AISD as being at risk of dropping out of school. One of the main indications of being at risk is low academic achievement. Student mentors tutor student trainees to help raise the academic achievement level of trainees. To evaluate this component of the program, the following data sources were used.

- Science and mathematics end-of-course grades were obtained from AISD's individual student profile reports. These grades are expressed as numeric values on a 100-point scale, rather than traditional letter grades.

- Grade point averages (GPAs) for fall 1992 and spring 1993 were obtained from AISD's individual student profile reports. These GPAs are based on a 4-point scale.

- GPA comparisons of all AISD high school students and Austin Youth River Watch students were obtained from GENESYS. These GPAs are based on a 100-point scale.

Science and Mathematics Grades (100-point scale)

Science is the major focus of Austin Youth River Watch activities, and tutoring activities tend to concentrate on science and mathematics. The science and mathematics end-of-course grades (based on a 100-point scale) of Austin public school students were examined for changes between the fall 1992 semester and the spring 1993 semester. When semester comparison information was not available (students attended mathematics or science classes one semester, but not the next), students were eliminated from the analysis.

More students who joined the program during Q1 (July, August, September 1992) and Q2 (October, November, December 1992) showed an improvement in science and mathematics grades than students who joined in Q3 (January, February, March 1993) and Q4 (April, May, June 1993). Eighty-six percent (86%) of Q1 and Q2 students demonstrated improvement in their science grades, and 57% demonstrated improvement in their mathematics grades. In contrast, 18% of Q3 and Q4 students demonstrated improvement in their science grades, and 50% demonstrated improvement in their mathematics grades.

For students who joined during Q1 and Q2 the average science grade at the end of fall 1992 was 73.0 points--which increased to an average of 80.5 points at the end of spring 1993. For students who joined during Q1 and Q2 the average mathematics grade at the end of fall 1992 was 66.86 points--which increased to an average of 75.86 points at the end of spring 1993. In contrast, for students who joined during Q2 and Q3 the average science grade at the end of fall 1992 was 71.67 points--which remained about the same by ending with an average of 71.56 points at the end of spring 1993. For students who joined during Q2 and Q3 the average mathematics grade at the end of fall 1992 was 73.80 points--which decreased slightly by ending with an average of 69.60 points at the end of spring 1993. Figures 7 and 8 display this information.

The average semester-end grades (mathematics and science) for students who joined the program during Q1 and Q2 were compared to those students who joined during Q3 and Q4 using *t* tests. Although there was no significant difference between the average mathematics grades, the difference in the average science grades between the two groups was statistically significant at the .05 level.

FIGURE 7
1992-93 AVERAGE SCIENCE SEMESTER-END GRADES
FOR AUSTIN YOUTH RIVER WATCH TRAINEES

	FALL 1992	SPRING 1993	CHANGE
Q1 and Q2 (N = 7)	73.00	80.86	+ 7.86
Q3 and Q4 (N = 9)	71.50	72.00	- 1.11

FIGURE 8
1992-93 AVERAGE MATHEMATICS SEMESTER-END GRADES
FOR AUSTIN YOUTH RIVER WATCH TRAINEES

	FALL 1992	SPRING 1993	CHANGE
Q1 and Q2 (N = 7)	66.86	75.86	+ 8.40
Q3 and Q4 (N = 10)	73.80	69.60	- 4.20

The science and mathematics grade improvement of students who joined in Q1 and Q2 suggest that the program had a positive effect on these students. The greater improvement of these students (than those who joined during Q3 and Q4) also suggest that students may need to be in the program at least six months before an effect can be seen.

Grade Point Averages (100-Point Scale)

Another measure of student achievement to consider is the grade point averages (GPAs) of Austin Youth River Watch trainees. GENESYS data indicate that in comparison to all AISD high school students, the GPAs of the Austin Youth River Watch trainees were lower for both fall 1992 and spring 1993. These GPAs are based on a 100-point scale and comparisons are made on all AISD program trainees regardless of when they joined the Austin Youth River Watch Program (N = 28).

Figure 9 illustrates the average GPAs for AISD high school students and the Austin Youth River Watch students for fall 1992 and spring 1993. The AISD GPA average was the same for both semesters.

FIGURE 9
1992-93 AVERAGE GPA FOR AISD HIGH SCHOOL STUDENTS AND AUSTIN YOUTH RIVER WATCH TRAINEES

AISD 1992-93 GPA AVERAGE	AUSTIN YOUTH RIVER WATCH FALL 1992 GPA AVERAGE	AUSTIN YOUTH RIVER WATCH SPRING 1993 GPA AVERAGE
79.5	76.8	77.6

Because 85% of the Austin Youth River Watch trainees are at-risk, it is not surprising that their average GPAs are lower than those of the AISD high school students. However, *Austin Youth River Watch students did show a slight gain in their average GPAs from fall 1992 (76.8) to spring 1993 (77.6).*

Grade Point Averages (4-Point Scale)

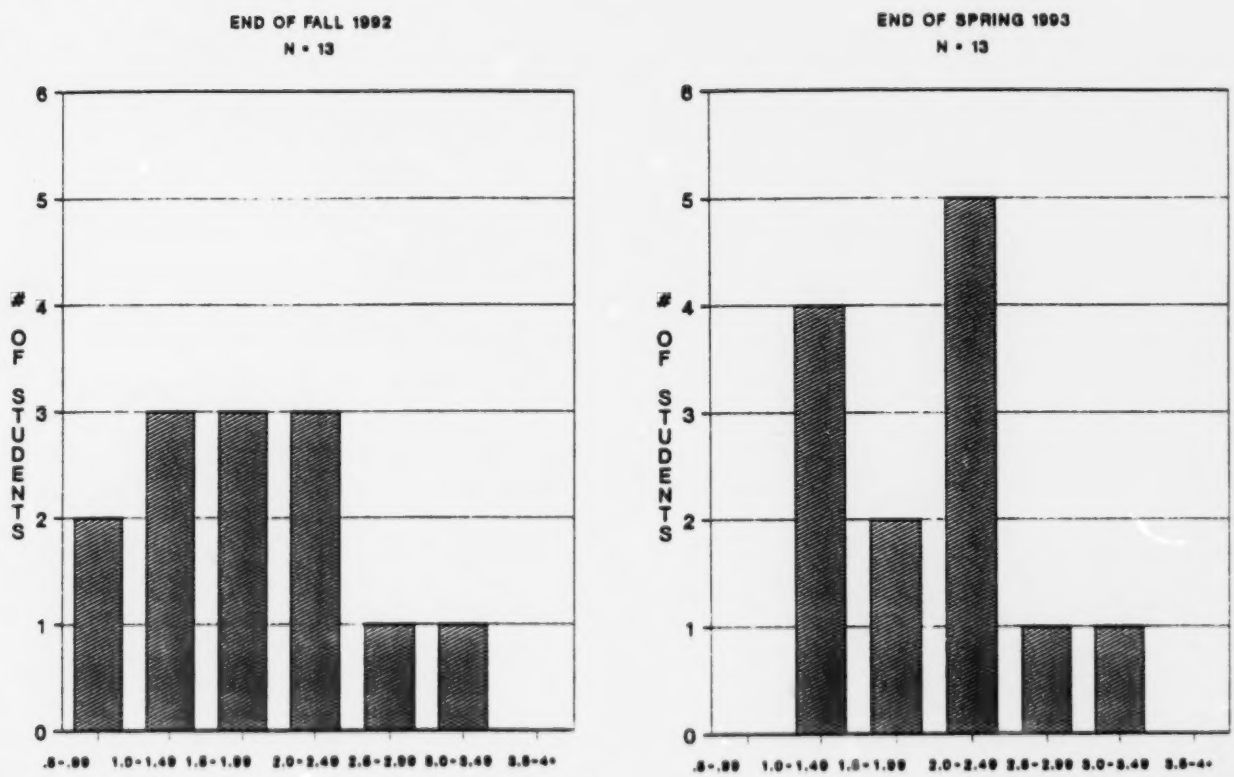
Individual (GPA) increases of Austin Youth River Watch participants attending Austin public high schools were ascertained from individual student profile reports (see Figures 10 and 11). Because fall 1992 GPAs are not available for students who joined the program during Q4 (April, May, June 1993), these comparisons are made on students who joined the program Q1, Q2 and Q3 (June 1992 - March 1993). There were two fewer students in this group from fall to spring due to the two spring dropouts.

FIGURE 10
RANGE OF GRADE POINT AVERAGES (GPAs) FOR AUSTIN YOUTH RIVER WATCH STUDENTS, 1992-93

	LOWEST GPA	HIGHEST GPA	AVERAGE GPA
Fall 1992 (N=15)	.1	3.22	1.78
Spring 1993 (N=13)	1.13	3.25	1.99

Figure 11 displays the distribution of AISD Austin Youth River Watch trainee GPAs for fall 1992 and spring 1993. These semester comparisons are of students who joined the Austin Youth River Watch Program from June 1992 through March 1993 (Q1, Q2 and Q3) and shows more students attaining a GPA greater than or equal to 2.0 (a "C" average, or better) at the end of spring 1993.

FIGURE 11
DISTRIBUTION OF GRADE POINT AVERAGES (GPAs), BY SEMESTER FOR AUSTIN YOUTH RIVER WATCH TRAINEES, 1992-93
(Students who joined in Q1, Q2, and Q3)



STUDENT SURVEY

Students indicated that participation in the Austin Youth River Watch program had helped them to become more interested, and to perform better, in science and mathematics courses. They also indicated that they were able to make new friends, enjoyed the activities, learned the importance of water quality, and welcomed the money they earned from their participation. Students agreed that they would encourage others to participate in the Austin Youth River Watch Program and that they plan to continue their participation in the program.

At the end of the 1992-93 school year Austin Youth River Watch trainees were asked to complete an ORE-designed questionnaire. Most of the items were rated on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree" (one was a yes-no item). There were also five (5) open-ended questions to allow students to give unconstrained answers. Twenty-two (22) of the 31 trainees returned their questionnaires (a 71% response rate).

The focus of the questionnaire was on the trainees' perception of program benefits and experiences (see Figure 12). *All of the trainees agreed (responded "yes") that they would encourage others to participate in the Austin Youth River Watch Program and that they planned to continue their participation.* Additionally, most of the trainees strongly agreed or agreed that participation had helped them to:

- Know more about environmental issues (93%),
- Know more about science (68%),
- Know more about mathematics (59%), and
- Know more about water issues (100%).

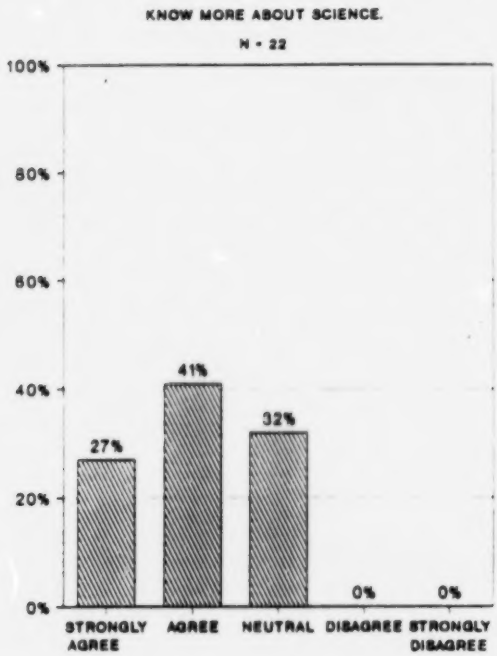
Many students also responded that they were more interested in environmental issues, science, mathematics, and water pollution issues because of their participation in the Austin Youth River Watch Program (see Figure 14). Because of the tutoring they received in the Austin Youth River Watch Program, many students strongly agreed or agreed that they were:

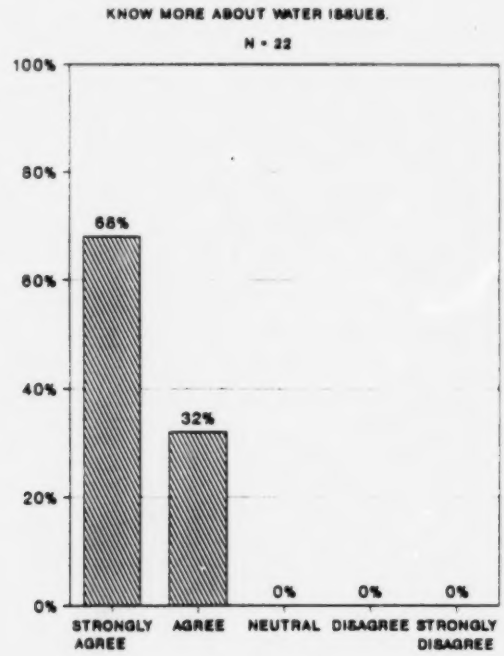
- Learning more about mathematics/science (64%),
- More interested in school work, (46%) and
- Doing better in their school work (55%).

See Figures 12, 13, and 14 for more detailed information concerning trainee survey responses.

FIGURE 12
AUSTIN YOUTH RIVER WATCH 1992-93
SURVEY RESULTS

Participating in the Austin Youth River Watch Program has helped me to:





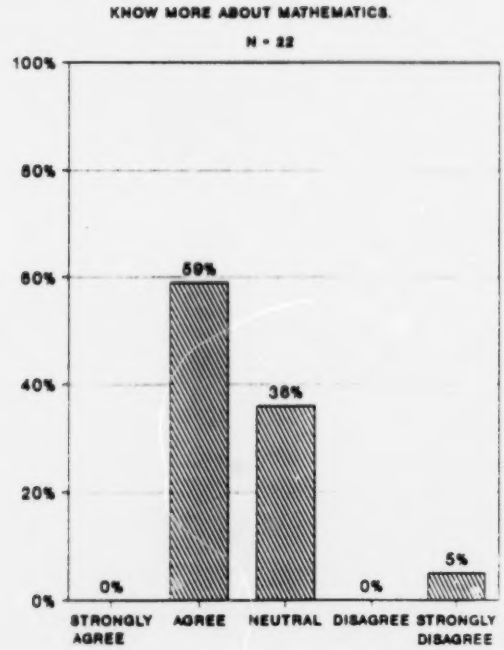
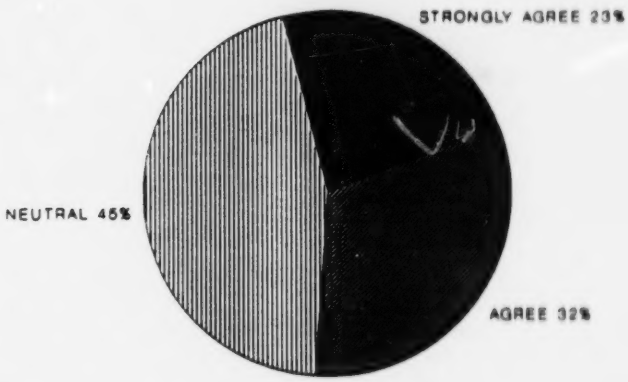


FIGURE 13
AUSTIN YOUTH RIVER WATCH 1992-93
SURVEY RESULTS

Because of the tutoring I have received in the Austin Youth River Watch Program:

I FEEL I AM DOING BETTER IN MY SCHOOL WORK.
N = 22



I AM LEARNING MORE ABOUT MATH/SCIENCE.
N = 22

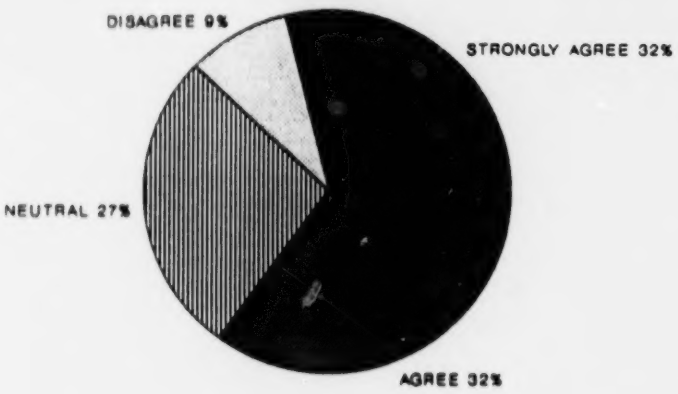


FIGURE 14
AUSTIN YOUTH RIVER WATCH 1992-93
SURVEY RESULTS

Total # participants 31

Total # respondents 22

Response rate 71%

	Strongly Agree A	B	C	D	Strongly Disagree E
Participating in the Austin Youth River Watch Program has helped me to:					
Know more about environmental issues	73%	23%	4%		
Know more about science	27%	41%	32%		
Know more about mathematics		59%	36%		5%
Know more about water issues	68%	32%			
Because of participating in the Austin Youth River Watch Program, I am more interested in:					
environmental issues	59%	32%	9%		
science	41%	27%	27%	5%	
mathematics	23%	23%	51%	4%	
water pollution issues	73%	18%	9%		
Because of the tutoring I have received in the Austin Youth River Watch Program:					
I am learning more about math/science	32%	32%	27%	9%	
I am learning more about English	18%	18%	45%	14%	5%
I am more interested in my school work	23%	23%	50%	4%	
I feel I am doing better in my school work	23%	32%	45%		
I enjoy going to school more than I did before	27%	9%	59%	5%	
My participation in the AYRW has been very important to me	68%	32%			

	YES	NO
Would you encourage others to participate in the AYRW?	100%	
Do you plan to continue your participation?	100%	

In responding to the question, "What other things have you received because of the tutoring you have received?" trainees commented:

- It gave me more interest in school.
- I am more interested in the environment.
- I have learned more about water.
- My grades have improved.

Trainees offered the following comments to the question, "How did you use the knowledge of math, science, environmental issues and/or English in testing the river water?"

- We use these skills to calculate and understand the results of our tests.
- It helped me do the reports in English and on the TAAS Test. It also helped me format data charts.
- The science part helped me to know more about our own issues about the water and the math part helped me learn about measurements of chemicals and also how to tell temperatures.
- In some of the procedures for testing you have to add, subtract, etc., so that helped and of course reading instructions would fall under English and it has to do with water--that goes under science.
- I used math to figure out the numbers and the right answers for the tests....We use English because we do a lot of writing.

Trainees responding to the question, "What is the most important thing you have learned about river water through the Austin Youth River Watch Program?" commented:

- I learned that water is very important to our society.
- I've learned all of the different kinds of chemicals.
- I've learned how many people care about our environment. How important it is that we work together and teach others to help to preserve our waters because they are an important part of our survival.
- That hard work does pay off...and about the water, I've learned how and what we need to keep it clean.
- You can't just judge a river or creek by its looks because, though you might see clear water, you can't see the little pollutants that make a big difference.

In responding to the question, "What did you most enjoy about your participation in the Austin Youth River Watch Program?" trainees commented:

- I most enjoyed going to the creek and going on trips to water treatment plants and going out of town.
- All my new friends I've made and the interesting new things I've learned.
- The nice friends, the campouts, and most of all the pay.
- The trips and awards we got.
- Meeting all different people and working with all kinds of chemicals.
- I enjoyed the research and looking around for any problems.
- All the trips, campouts, and always learning something new.

In answering the question, "How has participating in the Austin Youth River Watch Program affected you?" trainees offered:

- By teaching me about school and doing my homework, I am doing better on tests and know more about science.
- The Austin Youth River Watch program has increased my knowledge about the water purity in our school's neighborhood and it also gave me the opportunity to make new friends.
- I am more aware of our environment and it has also opened many new doors for me!
- I am a better person.
- It's affected me in a lot of ways such as (I'm) more interested in school, homework, and work itself.
- It's made me more aware of water issues and water quality and with that knowledge it's put me to where I know more than other people might know about water.
- I have learned more about the environment--it has had a positive effect on me.

SERVICE TO THE COMMUNITY

Austin Youth River Watch program participants performed a valuable service to the community. Because of their river water monitoring, program participants discovered and reported potentially harmful or costly leaks in the City's water system. One discovery earned program participants an award from the LCRA for "environmental excellence."

In addition to encouraging at-risk students to improve their mathematics and science skills, the Austin Youth River Watch mentors and trainees have performed a valuable service to the City of Austin. During the past year, program participants discovered and reported potentially harmful or costly leaks in the city's water system:

- One student mentor detected a broken water main which was leaking treated water in one of the creeks. This discovery was important because treating water for private use is an expensive procedure. Losing treated water into the creeks is costly.
- Another student mentor discovered and reported a chlorine leak which was then corrected within 24 hours.
- High phosphate levels, attributed to a sewage leak, were detected by a group of student mentors and trainees, a coordinating teacher, and the program coordinator.

Through the students' participation in the Austin Youth River Watch Program, the water quality of the Colorado River and its tributaries has been improved. In fact, the discovery of the sewage leak resulted in an award given by the LCRA for "environmental excellence" to the students and staff who detected the leak.

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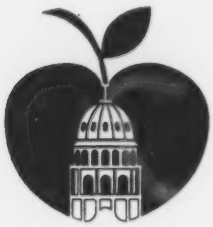

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